

May 14, 2009

Mr. Kurt Sawyer,  
Building & Capital Projects Director  
City of Mesquite  
10 E. Mesquite Blvd  
Mesquite, NV 89027

**RE: SENSITIVE PLANT SURVEYS AT INTERSTATE 15 PROPOSED HIGHWAY  
INTERCHANGES: MILES 118 & 120**

Dear Mr. Sawyer:

**INTRODUCTION**

This report presents the results of rare and sensitive plant surveys conducted adjacent to the Interstate Highway 15 (I-15), within the City of Mesquite, Clark County, Nevada. The surveys were conducted at highway mile markers 118 and 120 on April 30, 2009, by biologists experienced with the botanical resources of the region. A summation of the results is below:

**Mile 118:** Two individual threecorner milkvetch plants were observed adjacent to one another in the Mile 118 interchange botanical survey area (Figure 1). The threecorner milkvetch is listed by the state of Nevada as critically endangered. Critically endangered means the species is threatened with extinction, survival requires assistance because of overexploitation, disease or other factors or because their habitat is threatened with destruction, drastic modification or severe curtailment ([N.R.S. 527.260-.300](#)). The species is also considered a Nevada Special Status Species by the federal land management agency.

**Mile 120:** No state- or federally-protected plant species were found in the Mile 120 interchange botanical survey area.

**PROJECT AND SITE DESCRIPTION**

The first of the two proposed projects includes the creation of a new highway interchange that would provide access from the I-15 to the City of Mesquite at Mile 118. A second project consists of improvements to the existing I-15 interchange at Mile 120, the Falcon Ridge exit (Figure 1).

The project area contains two main vegetative communities: Mojave creosote bush scrub and Mojave wash scrub. A complete list of vegetation observed in the proposed project area is located in Appendix A, Tables 1 and 2. Lands adjacent to the proposed Mile 118 I-15 interchange range from graded to largely undisturbed. The Mile 120 interchange survey area is highly disturbed.

### **Mojave Creosote Bush Scrub**

This vegetation community is a widespread plant community in the Mojave Desert and occurs below 5,000 feet in elevation. Vegetation typical of the creosote bush scrub community, and common on the site, includes creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Nevada ephedra (*Ephedra nevadensis*), threadleaf snakeweed (*Gutierrezia microcephala*), desert holly (*Atriplex hymenelytra*), white ratany (*Krameria grayi*), desert trumpet (*Eriogonum inflatum*), and desert globemallow (*Sphaeralcea ambigua*).

### **Mojave Wash Scrub**

This vegetative community occurs on sandy bottoms of wide canyons, incised arroyos of upper bajadas, and sandy, shallow washes of the lower bajadas in the Mojave Desert, usually below 5,000 feet. This community exists in the many major washes and secondary drainages within the project area. The soils consist primarily of sand and silty sand. Plants commonly occurring in the Mojave wash scrub include: honey mesquite (*Prosopis glandulosa*), salt cedar (*Tamarix ramosissima*), catclaw acacia (*Acacia greggii*), sand croton (*Croton californicus*), Threadleaf snakeweed (*Gutierrezia microcephala*), indigo bush (*Psoralea fremontii*), cheesebush (*Hymenoclea salsola*), and four-wing saltbush (*Atriplex canescens*).

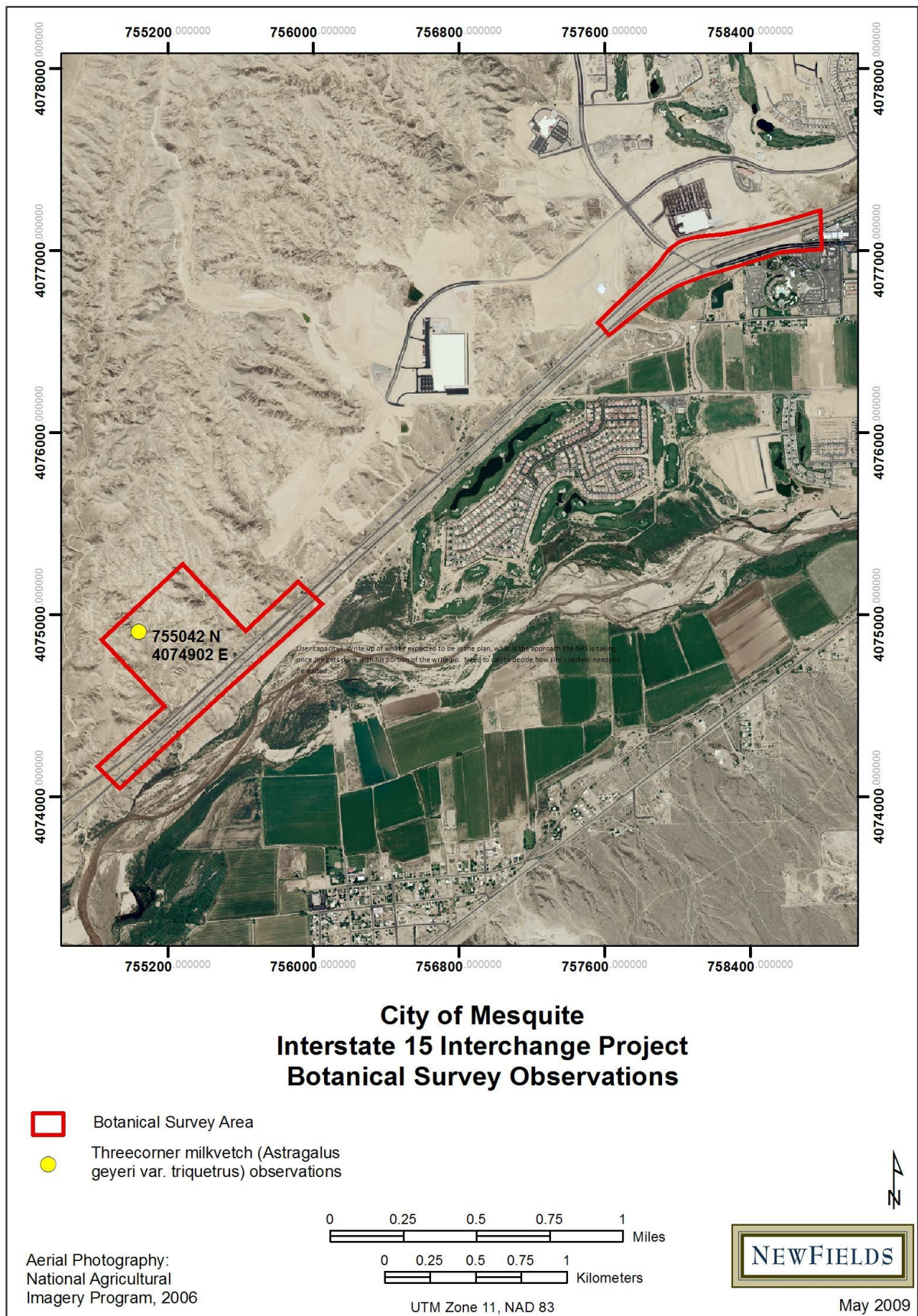
## **METHODS**

The objective of the botanical field surveys was to identify rare and sensitive plant species that occur within the project alignment. Using Bureau of Land Management (BLM) protocol for rare and sensitive plant surveys a pre-survey literature review was conducted to determine what botanical resources are likely to be within the survey area.

To complete the field surveys, NewFields' Biologist, Adam Hamburg, was accompanied by a Botanist previously approved by the BLM to conduct vegetation surveys, Ms. Hermi Hiatt. Pedestrian transects were performed within the project alignment on April 30, 2009. The timing of the spring surveys optimized the likelihood that annual plants would be observed. Intuitive Controlled Survey protocols were followed as outlined in Whitaker (1998). This protocol allows for surveyors to look for potential habitat and focus on areas where targeted plants are likely to be found. Thus, incised washes and sand dune habitat were focused upon as these habitats host the targeted species of concern (Figure 2). Species observations were recorded using data sheets and a handheld Garmin GPSMAP 60CSX.

## **RESULTS**

The proposed project areas are located in the Mojave Desert region of southern Nevada. Plant species observed in the proposed Mile 118 and 120 interchange survey areas are listed in Appendix A, Tables 1 and 2 respectively.



**Figure 1. Project Vicinity, Survey Areas and Location of Species of Concern**





**Figure 2. Sand Dune Habitat Was the Focus of the Botanical Survey**

***Sensitive Plant Species and BLM Species of Concern***

**Mile 118:** Based upon results of the pre-survey literature search, two plant species of concern, threecorner milkvetch and Sticky buckwheat (*Eriogonum viscidulum*) were the focus of the botanical surveys. Sticky buckwheat was not observed. Two individual threecorner milkvetch plants were observed immediately adjacent to one another within the Mile 118 interchange survey area (Figures 1, 3 and 4). These milkvetch were located at UTM Zone 11, 755042E, 4074902N, NAD 83.

**Mile 120:** No plant species of concern were found within this interchange survey area.



**Figure 3. Threecorner Milkvetch Observed Within The Mile 118 Survey Area**

**Threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*)**

Three-corner milkvetch is a diminutive plant 10 to 20 centimeters long (3.9 to 7.9 inches). The leaves are typically 3 to 5 centimeters (1.2 to 2 inches) and bear 5 to 13 linear-oblong leaflets 4 to 15 millimeters in length (1.6 to 5.9 inches). Flowers are white to faint pink, tubular, and are 1.5 to 2.5 millimeters long (0.6 to 1 inch). Seed pods are oblong, curved and have a prominent groove on the lower side. A characteristic trait of the three-corner milkvetch is that the seed pod is conspicuously triangular in cross-section. This species generally flowers in April and May and is assumed to be insect pollinated (Mozingo and Williams 1980; Cronquist et al. 1989; NNHP 2001).





**Figure 4. Threecorner Milkvetch Observed Within The Mile 118 Survey Area**

Three-corner milkvetch is a rare and localized species known only to occur in 46 sites within Clark and Lincoln Counties in Nevada (NNHP 2001). The largest populations in Nevada are found along the west side of Lake Mead near the Virgin River delta, and along the southwestern base of the Mormon Mountains north of Overton. The plant's habitat is restricted to finely textured, deep, sandy soils or sand dunes. The species is correlated with low hill outcroppings of the Muddy Creek tertiary age sediment deposits. The elevation range of known populations in Nevada is between 1,110 to 2,400 feet (NNHP 2001).

Three-corner milkvetch is listed as Critically Endangered by the State of Nevada. BLM considers it a Nevada Special Status Species. Threats to the habitat include habitat removal or disturbance through urban development, utility corridor establishment, damage by OHV use or other recreational activities, sand and gravel mining, and road development (NNHP 2001). Competition by noxious or invasive weeds may also pose a threat.

#### ***Cactus and Yucca***

No cacti or yucca were observed in the mile 120 survey area. Cacti observed within the mile 118 include silver cholla (*Cylindropuntia echinocarpa*) and beavertail cactus (*Opuntia basilaris*). Cacti and yuccas are protected under Nevada Revised Statutes (NRS) 527.060 to 527.120.

### **Noxious Weeds**

A noxious weed is legally defined as any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley et al. 1999). A noxious weed can also be defined as a plant that grows out of place and is "competitive, persistent, and pernicious" (James et al. 1991).

Common invasives in the project area include sahara mustard (*Brassica tournefortii*), malcomia (*Malcolmia Africana*), red stem filaree (*Erodium cicutarium*), russian thistle (*Salsola tragus*), mediterranean grass (*Schismus* sp.) and red brome (*Bromus madritensis* ssp. *Rubens*).

### **CONCLUSION**

Field investigations were completed within the optimal blooming period on April 30, 2009.

**Mile 118:** Two individual threecorner milkvetch plants were the only sensitive species identified within the survey area for this proposed interchange (Figure 1). The threecorner milkvetch is listed as Critically Endangered by the State of Nevada.

**Mile 120:** No plant species of concern were found within this area.

Sincerely,

**NEWFIELDS ENVIRONMENTAL  
PLANNING & COMPLIANCE, LLC**

A handwritten signature in dark ink, appearing to read 'Adam Hamburg', followed by a long, horizontal, slightly wavy line extending to the right.

Adam Hamburg  
Environmental Scientist

## REFERENCES

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**APPENDIX A**  
**PLANT SPECIES OBSERVED**

**TABLE 1. Botanical Observations, Mile 118 Survey Area<sup>1</sup>**

Family Name	Scientific Name <sup>2</sup>	Common Name
GNETOPHYTA		
EPHEDRACEAE	<i>Ephedra nevadensis</i>	Nevada ephedra
	<i>Ephedra viridis</i>	Green ephedra
ANTHOPHYTA: DICOTYLEDONES		
ASTERACEAE	<i>Ambrosia dumosa</i>	White bursage
	<i>Atrichoseris platyphylla</i>	Gravel gost
	<i>Baileya multiradiata</i>	Desert marigold
	<i>Chaenactis fremontii</i>	Desert pincushion
	<i>Eriophyllum lanosum</i>	White woolly daisy
	<i>Geraea canescens</i>	Desert sunflower
	<i>Gutierrezia microcephala</i>	Threadleaf snakeweed
	<i>Hymenoclea salsola</i>	Cheesebush
	<i>Isocoma acradenia</i>	Goldenbush
	<i>Machaeranthera canescens</i>	Hoary aster
	<i>Palafoxia arida</i>	Palafoxia
	<i>Rafinesquia neomexicana</i>	Desert chicory
	<i>Stephanomeria pauciflora</i>	Wire-lettuce
BORAGINACEAE	<i>Pectocarya platycarpa</i>	Broad fruit pectocarya
	<i>Tiquilia plicata</i>	Coldenia
BRASSICACEAE	<i>Brassica tournefortii</i>	Sahara mustard
	<i>Lepidium lasiocarpum</i>	Peppergrass
	<i>Malcolmia africana</i>	African malcolmia
CACTACEAE	<i>Cylindropuntia echinocarpa</i>	Silver cholla
	<i>Opuntia basilaris</i>	Beavertail cactus
CHENOPODIACEAE	<i>Atriplex canescens</i>	Fourwing saltbush
	<i>Atriplex hymenelytra</i>	Desert holly
	<i>Atriplex polycarpa</i>	Desert saltbush
	<i>Salsola tragus</i>	Tumbleweed
EUPHORBIACEAE	<i>Croton californicus</i>	Sand croton
FABACEAE	<i>Acacia greggii</i>	Catclaw acacia
	<b><i>Astragalus geyeri triquetrus</i></b>	Threecorner milkvetch

1) Field survey was conducted on April 30, 2009

2) Nomenclature follows Baldwin et al., 2002, and Flora of North America, 2003.

**Table 1. Botanical Observations, Mile 118 Survey Area (Continued) <sup>1</sup>**

FABACEAE cont.	Astragalus layneae	Layne milkvetch
	Lupinus sp.	Lupine
	Prosopis glandulosa	Honey mesquite
	Psoralea fremontii	Indigobush
GERANIACEAE	Erodium cicutarium	Red stem filaree
HYDROPHYLLACEAE	Phacelia crenulata	Heliotrope phacelia
KRAMERIACEAE	Krameria grayi	White rhatany
LILIACEAE	Nolina bigelovii	Beargrass
LOASACEAE	Mentzelia albicaulis	Whitestem blazingstar
	Mentzelia involucrata	Sandblazing star
MALVACEAE	Sphaeralcea ambigua	Desert mallow
NYCTAGINACEAE	Abronia villosa	Sand verbena
ONAGRACEAE	Camissonia brevipes	Suncup
	Oenothera deltoides	Evening primrose
PLANTAGINACEAE	Plantago ovata	Woolly plantain
POLEMONIACEAE	Eriastrum eremicum	Mojave woollystar
	Langloisia setosissima	Langloisia
POLYGONACEAE	Chorizanthe brevicornu	Brittle spineflower
	Chorizanthe rigida	Mojave spineflower
	Eriogonum inflatum	Desert trumpet
	Eriogonum pusillum	Yellow turban
RANUNCULACEAE	Delphinium sp.	Larkspur
RUTACEAE	Thamnosma montana	Turpentine-broom
ZYGOPHYLLACEAE	Larrea tridentata	Creosote bush
ANTHOPHYTES: MONOCOTYLEDONES		
POACEAE	Achnatherum hymenoides	Indian ricegrass
	Bromus madritensis ssp. rubens	Red brome
	Erioneuron pulchellum	Fluffgrass
	Hordeum murinum	Hare barley
	Pleuraphis rigida	Big galletta
	Schismus barbatus	Schismus

1) Field survey was conducted on April 30, 2009

2) Nomenclature follows Baldwin et al., 2002, and Flora of North America, 2003.



**Table 2. Botanical Observations, Mile 120 Survey Area<sup>1</sup>**

Family Name	Scientific Name <sup>2</sup>	Common Name
ANTHOPHYTA: DICOTYLEDONES		
ASTERACEAE	Ambrosia acanthicarpa	Sand bursage
	Baileya multiradiata	Desert marigold
	Chaenactis fremontii	Desert pincushion
	Encelia virginensis	Virgin River encelia
	Machaeranthera canescens	Hoary aster
	Gutierrezia microcephala	Threadleaf snakeweed
	Hymenoclea salsola	Cheesebush
	Palafoxia arida	Palafoxia
	Stephanomeria pauciflora	Wire-lettuce
BRASSICACEAE	Brassica tournefortii	Sahara mustard
	Lepidium lasiocarpum	Peppergrass
	Malcolmia africana	African malcolmia
CHENOPODIACEAE	Atriplex canescens	Fourwing saltbush
	Salsola tragus	Tumbleweed
EUPHORBIACEAE	Croton californicus	Sand croton
FABACEAE	Astragalus lentiginosus	Freckled milkvetch
	Prosopis glandulosa	Honey mesquite
GERANIACEAE	Erodium cicutarium	Red stem filaree
MALVACEAE	Sphaeralcea ambigua	Desert mallow
POLYGONACEAE	Eriogonum inflatum	Desert trumpet
TAMARICACEAE	Tamarix ramosissima	Saltcedar
ZYGOPHYLLACEAE	Larrea tridentata	Creosote bush
ANTHOPHYTA: MONOCOTYLEDONES		
POACEAE	Bromus madritensis ssp. rubens	Red brome
	Hordeum murinum	Hare barley
	Schismus barbatus	Schismus
	Sporobolus airoides	Alkali sacaton

1) Field survey was conducted on April 30, 2009

2) Nomenclature follows Baldwin et al., 2002.